THE UNIVERSITY of York

COM00060M

MSc/BEng/MEng* Degree Examinations 2013/14

DEPARTMENT OF COMPUTER SCIENCE

User-Centred Design (UCDE)

Open Assessment

Issued: Wednesday, 27th November, 2013
Submission due: 12 noon, Wednesday 29th January, 2014
Prototype Presentation: Scheduled times 30th and 31st January, 2014
Feedback and marks due: Wednesday 26th February, 2014

All students should submit their answers through the electronic submission system: http://www.cs.york.ac.uk/student/assessment/submit/ by **12 noon, Wednesday 29th January, 2014**. An assessment (or part of an assessment) submitted after this deadline will be marked initially as if it had been handed in on time, but the Board of Examiners will normally apply a lateness penalty to the whole assessment.

The feedback and marks date is guided by departmental policy but, in exceptional cases, there may be a delay. In these cases, all students expecting feedback will be emailed by the module owner with a revised feedback date. The date that students can expect to see their feedback is published on the module descriptor: http://www.cs.york.ac.uk/modules/

Your attention is drawn to the Guidelines on Mutual Assistance and Collaboration in the Departmental Statement on Assessment:
http://www.cs.york.ac.uk/student/assessment/policies/#AcademicMisconduct

Any queries on this assessment should be addressed to Dr. Christopher Power (christopher.power@york.ac.uk)

Answers that apply to all students will be posted on the UCDE webpage (https://sites.google.com/a/york.ac.uk/ucde/).

Rubric:

The following is the Open Assessment for the module User-Centred Design (UCDE) in the Department of Computer Science at the University of York. This assessment consists of 3 parts:

- Part 1: Group Assessment - Interactive System Design
  - You will undertake the design of an interactive system in a small group of 3-6 people, based on cohort sizes taking the modules. Group membership is posted on the webpage for the module. The names of all your group members should be on the front cover of your assessment. Do not include exam numbers as these are private to individuals.
- Part 2: Group Assessment - Presentation of Interactive System Prototype
  - As a group you will present your interactive system prototype to a panel of judges made up of the Lecturer and the PTAs (or other faculty if needed).
- Part 3: Peer Assessment
  - You will undertake a peer assessment of your group members. For peers who are not performing in a substantial and meaningful way towards the completion of the assessment there will be marks deducted.

There will be no programming required as part of this assessment. Instead, all answers will be judged on the soundness of their application of the user-centred design concepts and techniques as applied to the design problem.

Design problem:

The following is the design problem that each group will undertake:
We are currently facing a major challenge in our urban environments. As the number of people increase, so does the use of cars. This leads to increase fuel consumption, increased noise and air pollution and higher costs for maintenance of roadways.

Your group must design an interactive system that will encourage people to use public transport.

Part 1: Group Assessment: Interactive System Design (90%)

Each group will conduct a user-centred design lifecycle of an interactive system:

- Development of the initial user requirements through personas and scenario based design
- Creating a low-fidelity prototype that covers the functionality specified in the conceptual design
- Evaluation of your low-fidelity prototype through expert inspection methods
- Refinement of the prototype based on the results of the inspection
- Evaluation of your refined low-fidelity prototype through a task-based user evaluation
- Refinement of your low-fidelity prototype based on the results of the user evaluation

Format:

There are two pieces of work to be submitted for Part 1 of this assessment: a Group Assessment Report which presents Part 1.1-1.3 in this section and a Group Logbook presenting Part 1.4.

Group Assessment Reports will be a maximum of 25 pages of single sided A4 paper, single-spaced at a minimum of 12-point font. There will be a main document section that will be a maximum of 15 pages long and are for documenting the activities in Part 1.1-1.3. You may also have 10 pages of appendices that may only contain screenshots of the interactive system prototype and tables of usability problems. These appendices must be properly referred to in the text of the main document or they will not be referenced for purposes of marking.

Group Assessment Reports should include a title page, with the group number and group member names (not examination numbers) clearly labeled on the title page. Group Assessment Reports should include a Table of Contents, a List of Tables and a List of Figures. These items of front matter are not included in the 15 page limit for main document.

Group Logbooks have no maximum in number of pages. They should be single spaced at a minimum of 12-point font.

Submission:

One individual in each group should be assigned the role of submitting the Group Assessment Report and the Group Logbook for the group. Each group should inform the Lecturer by Wed/Spr/2 regarding who will be submitting the report and logbook in an email, including his/her full name and system user name.

This submission will be done online through the electronic submission system for the department. The group should package their report and their logbook into one compressed archive file (either zip or tar.gz). The file should be labeled UCDE-Group-X.y where X is your group number and y is the extension of the file.

Part 1.1: User Requirements Gathering (10%)

Each group will conduct appropriate elicitation activities with users regarding their requirements to address the Design Problem. These activities can be either questionnaires conducted with a minimum of 10 users per group member, online or on paper, or a minimum of 2 user interviews per group member. Students should note that

these minimum numbers do not necessarily mean that they will have sufficient information to inform the design of the system in terms of user goals. If you have questionnaires or interviews that yield data that is low in quality (e.g. answers are vague, answers without sufficient detail), you may need to collect more in order to properly define your interactive system.
For pen and paper questionnaires or interviews, students should collect informed consent forms with name and email contact details for each individual who participated in the elicitation activities. For online questionnaires, students should collect the list of unique IP addresses produced from the online questionnaire software used to for participants who answered the questionnaire. These materials are not required on hand-in of the assessment; however, students should be prepared to submit these on request of the Lecturer as proof that they have undertaken the activities.

You must describe how you undertook the elicitation activities, what user groups you engaged with, as well as your analysis of what you found in your data regarding the goals and needs of users of your interactive system.

Using information from the elicitation activities, groups will define 2 personas that can be used in the user-centred design process. For each persona, describe two possible goals that could be satisfied by your interactive system prototype.

Marking Criteria:

- Clear explanation of an appropriate methodology undertaken in data collection and analysis. Quality of personas and user goals and demonstrating a link back to data collected.

Part 1.2: Scenario Based Design (10%)

Each group will undertake scenario-based design of an interactive system that addresses the Design Problem. Groups should prepare the necessary analysis associated with scenarios regarding:

- The setting/context of the interactive system
- The actors who will undertake tasks in the system
- Concepts that need to be understood by users to use the interactive system
- A set of tasks that can be undertaken by users in the system
- The criteria by which users will know they have accomplished their goals

In addition to this information the following will be submitted:

- Each group will provide 1 detailed Problem Scenario that describes current user practice in relation to the Design Problem described in this document.
- Each group will provide 1 claims analysis of that Problem Scenario.
- Each group will provide 1 detailed Activity Scenario that introduces the interactive system
- Each group will provide 1 claims analysis that demonstrates how the described interactive system improves on the current user practices

Marking Criteria:

- Problem Scenario specified to an appropriate level of detail
- Activity Scenario specified to an appropriate level of detail
- Appropriate Claims Analyses
- Scenarios link back to conclusions from the user requirements gathering activities in Part 1.1.

Part 1.3: Interactive System Prototype and Evaluation (70%)

Part 1.3.1 Interactive System Prototype (40%)

Groups will undertake the design of a low-fidelity interactive system prototype for the Design Problem described in this document. This interactive system should encompass all of the tasks that you have identified from your elicitation activities and scenario-based design activities.

This prototype should use the principles for good interaction design as discussed in lecture. Specifically, students should apply:

- Shneiderman's Principles of Interaction Design
- Don Norman's Design Principles

If designs for the web are employed, students should can also apply:

- Tog's Design Principles for the Web
- The Research Based Web Usability Guidelines from the usability.gov

If you wish to apply other design principles, you should discuss this with the Lecturer before you use them in your prototype design.

Groups will provide a general introduction to their interactive system and how it addresses the goals of the users listed in personas.

Groups will describe 2 substantial, complex pieces of functionality from their interactive system prototype. Groups should provide screen shots of these pieces of functionality.

Groups will describe the design rationale behind each piece of functionality in terms of how it satisfies the user requirements derived from their personas and activities presented in their scenarios. Groups will discuss what key design principles influenced this original design.

Marking Criteria:

- For each piece of functionality (20% x2):
    - Clear discussion of the purpose of the functionality and the design rationale on how it relates to personas and scenarios
    - Discussion of design principles used in the interactive system prototype

Part 1.3.2: Expert Inspection Evaluation of System Prototype (15%)

Groups will undertake a Collaborative Heuristic Evaluation (CHE) on their own interactive system prototype. The report on this evaluation should include the methodology undertaken and problems detected by group members in the evaluation. The report should include the severity rating recorded by each group member for each problem and the mean severity rating for each problem.

Groups may use either the Nielsen Heuristics for interactive systems or, if students have proposed an interactive web application, the Petrie and Power Heuristics for Interactive Web Applications.

Groups will choose 1 piece of functionality from their prototype that had usability problems. Groups may choose this piece of functionality based on:

- its criticality to the users (as judged by group members)
- the severity of problems found in it or,
- the number of problems found in it

Groups should justify their choice.

Groups will present the selected functionality in original interactive system prototype through screenshots. Groups will present the usability problems found in context of those screenshots. Groups will then present their redesign, describing with screenshots how the redesign addresses these problems.
Students should justify the changes that they have made in terms of how they address the violated heuristics.

Marking Criteria:

- Description of the methodology followed for the CHE
- Correct and complete reporting of usability problems
- Analysis and presentation of redesign of the interactive system prototype

Part 1.3.3: User Evaluation (15%)

Groups will undertake Task Based User Evaluations on their interactive system prototype with a total of 2 users per group member. The report on this evaluation should include the methodology undertaken in the user evaluation, the problems found by users in the interactive system prototype and the user severity ratings of those problems.
Groups will choose 1 piece of functionality from their prototype that had usability problems. Groups may choose this piece of functionality based on:

- its criticality to the users (as judged by group members)
- the severity of problems found in it or,
- the number of problems found in it

Groups should justify their choice.

Groups will present the selected functionality in original interactive system prototype through screenshots. Groups will the usability problems found in context of those screenshots. Groups will then present their redesign, describing how the redesign with screenshots that addresses these problems.

Marking Criteria:

- Description of the methodology followed for the user evaluation
- Correct and complete reporting of usability problems
- Analysis and presentation of redesign of the interactive system prototype

Part 1.4: Group Logbook (No Direct Contribution to Mark)

Each group will maintain a logbook of activities and meetings undertaken by the group. For each meeting the group holds, either through face-to-face or online meetings, the group members should record at a minimum:

- An agenda for the meeting
- Action items completed or missed from the previous meeting
- Action items assigned to group members to be completed for the next meeting

Group Logbooks should also contain records of who conducted what elicitation activities, who contributed to the design, who participated in the expert inspection evaluation, who conducted what user evaluations and who contributed to the report.

Group Logbooks should be submitted with your project report. Group Logbooks will not be marked, but will instead be used as evidence of performance for group members in Part 3 of this assessment.

Failure to submit the logbook will result in a 10% deduction for all group members.

Part 2: Group Assessment - Presentation of Interactive System Prototype (10%)

Groups should prepare a poster describing their interactive system prototype and the rationale behind its design. Posters will be displayed in the department during Spr/3, groups will be assigned a block of 10 minutes at which time they should be prepared to be present at the poster and discuss the process by which they created the prototype, its key pieces of functionality and the evaluations undertaken.

The purpose of this presentation is to convince the marking team, and anyone else who might come by, that your prototype is a workable interactive system that solves the design problem.

Marking Criteria:

- Poster presentations will be marked by how well the group communicates their success in creating and evaluating their interactive system prototype for the design problem.
- Marks are not given for graphic or visual design of the poster. However, posters should be clear in their presentation of the group work.

Part 3: Peer Assessment (Potential Mark Adjustment)

Students will submit a peer assessment for each group member. This peer assessment will consist of a set of Lickert scales as set by the Lecturer as well as an opportunity for open comments regarding group member performance. This information will be submitted in confidence to the Lecturer through an online survey mechanism that will be linked from the home page for the module. Failure to submit valid peer assessments will result in a 10% reduction in the overall mark for the submitting student. Peer assessments are also due on Wed/Spr/3 at noon.

During marking of the assessments, the marking team will examine the peer assessment reports. If a student has been reported by the majority of group members to be underperforming the group, and not contributing in a substantial and meaningful way, then the marking team will examine the logbooks for evidence supporting such a claim. If evidence is found in the form of missed action items, records of low attendance, low participation in activities or other information, then this will be taken into account as evidence of the case against the student.

If the case is unclear in the judgment of the Lecturer, then an interview with the student in question will be held with the Lecturer and one other member of staff. During that interview the student will be questioned regarding their participation and their understanding of the contents of the project.

If it is deemed from all of this evidence that a student has not participated in the group project in a substantial and meaningful way there will be a deduction to the student's overall mark on the assessment. This is in addition to any deductions made due to lack of participation in the group practicals during term. Deductions will usually be 10%; however, a student who is evidently not contributing, or actively detracting from a group performance, could have a much large deduction, including receiving an awarded mark of 0 for the assessment.

END OF ASSESSMENT